

DEPARTMENT OF TRANSPORTATION

ESC/OE MS #43
1727 30TH Street, 2ND Floor
Sacramento, CA 95816



September 22, 2000

04-CC,Sol-80-19.5/22.7,0.0/0.7
04-013054

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in CONTRA COSTA AND SOLANO COUNTIES IN CROCKETT AND VALLEJO FROM OLEUM REFINERY ROAD UNDERCROSSING TO CARQUINEZ BRIDGE TOLL PLAZA.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on November 1, 2000.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions and the Proposal and Contract.

Project Plan Sheets 14, 20, 21, 22, 23, 26, 29, 33, 34, 35, 77, 79, 82, 83, 86, 88, 89, 97, 98, 101, 112, 114, 115, 119, 121, 198, 205, 208 and 220 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 102C, 113A, 113B, 179A, 179B, 199A, 199B, 199C, 199D, 213A and 213B are added. Half-sized copies of the added sheets are attached for addition to the project plans.

In the Notice to Contractors and Special Provisions, registered engineers signatures and seals for Hydraulics, Electrical and Geotechnical are replaced with the attached.

In the Notice to Contractors, first page, the following paragraphs are added after the fourth paragraph:

"For all contractors' inquiries, contact the Toll Bridge Program Duty Senior at District 04 Office, 111 Grand Avenue, Oakland, California 94612; Fax Number (510) 286-4563; E-mail address, duty_senior_tollbridge_district04@dot.ca.gov; Telephone Number (510) 286-5549.

Contractors' will be requested to submit their inquiries in writing to the Oakland address, accompanied by an electronic copy where feasible, in order to avoid any misunderstandings, Written inquiries shall include the contractor's name, address and phone number.

The responses to contractors' inquiries, unless incorporated into a formal addendum to the contract, are not a part of the contract and are provided for the contractor's convenience only. In some instances, the question and answer may represent a summary of the matters discussed rather than a word-for-word recitation. The responses may be considered along with all other information furnished to prospective bidders for the purpose of bidding on the project. The availability or use of information provided in the responses to contractors' inquiries is not to be construed in any way as a waiver of the provisions of section 2-1.03 of the Standard Specifications or any other provision of the contract, the plans, Standard Specifications or special provisions, nor to excuse the contractor from full compliance with those contract requirements. Bidders are cautioned that subsequent responses or contract addenda may affect or vary a response previously given, and any such subsequent response or addenda should be taken into consideration when submitting a bid for the project. Inquiries that are submitted within seventy-two (72) hours of the bid opening date might not be addressed.

Contractors' inquiries and responses will be posted on the internet at <http://www.dot.ca.gov/hq/esc/tollbridge/index.html?Carquin/NewBridge/013054/Inquiry.html>

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In the Special Provisions, Section 2-1.07, "ESCROW OF BID DOCUMENTATION", the fourth paragraph is deleted.

In the Special Provisions, Section 5-1.01, "PLANS AND WORKING DRAWINGS," is revised as follows:

"When the specifications require working drawings to be submitted to the Engineer, the drawings shall be submitted to: Office of Resident Engineer, 3045 Research Drive, Richmond, CA 94086-5206.

When the specifications require working drawings to be submitted to the Division of Structure Design, the drawings shall be submitted to: Division of Structure Design, Documents Unit, Mail Station 9, 1801 30th Street, Sacramento, CA 95816, Telephone 916 227-8252."

In the Special Provisions, Section 5-1.13, "PLANS AND WORKING DRAWINGS is deleted.

In the Special Provisions, Section 5-1.22, "HAZARDOUS AND NON-HAZARDOUS MATERIAL, GENERAL", the second paragraph is revised as follows:

"Hazardous and non-hazardous material have been discovered through testing within the project limits. The designation "hazardous" shall apply to soil material with contaminant levels that meet or exceed the contaminant levels specified in the California Code of Regulations Title 22. The designation "non-hazardous" shall apply to all soil material with either contaminant levels below the levels specified in California Code of Regulations Title 22 or with non-detect contaminant levels. The complete report entitled "Site Investigation Report: Carquinez Interchange and South Approach" is available for inspection at the Department of Transportation, Toll Bridge Duty Senior's Desk, 111 Grand Avenue, Oakland, California, (510) 286-5549. Requests to review the report must be made with the duty senior at least 24 hours in advance. The levels of material designated as hazardous are not regulated under the Resource Conservation and Recovery Act. Material designated as non-hazardous in the plans or these special provisions may be utilized as embankment within the project limits."

In the Special Provisions, Section 5-1.23, "RELATIONS WITH CALIFORNIA DEPARTMENT OF FISH AND GAME", the second paragraph is revised as follows:

"Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, 1120 N Street, Room 200, Sacramento, CA 95814, Telephone 916-654-4490, and are available for inspection at the Department of Transportation at 111 Grand Avenue, Oakland, California 94612. Please contact the Toll Bridge Program Duty Senior, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549, at least 24 hours in advance."

In the Special Provisions, Section 5-1.24, "RELATIONS WITH U.S. ARMY CORPS OF ENGINEERS", the second paragraph is revised as follows:

"Copies of the Permit may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, Room 0200, Transportation Building, 1120 N Street, Sacramento, California 95814, Telephone No. (916) 654-4490, and are available for inspection at the Department of Transportation at 111 Grand Avenue, Oakland, California 94612. Please contact the Toll Bridge Program Duty Senior, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549, at least 24 hours in advance."

In the Special Provisions, Section 5-1.25, "RELATIONS WITH SAN FRANCISCO BAY CONSERVATION DEVELOPMENT COMMISSION (BCDC)", the second paragraph is revised as follows:

"Copies of the Permit may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, Room 0200, Transportation Building, 1120 N Street, Sacramento, California 95814, Telephone No. (916) 654-4490, and are available for inspection at the Department of Transportation at 111 Grand Avenue, Oakland, California 94612. Please contact the Toll Bridge Program Duty Senior, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549, at least 24 hours in advance."

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In the Special Provisions, Section 5-1.26, "RELATIONS WITH CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD", the second paragraph is revised as follows:

"Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, 1120 N Street, Room 200, Sacramento, CA 95814, Telephone 916-654-4490, and are available for inspection at the Department of Transportation at 111 Grand Avenue, Oakland, California 94612. Please contact the Toll Bridge Program Duty Senior, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549, at least 24 hours in advance."

In the Special Provisions, Section 5-1.27, "RELATIONS WITH UNITED STATES FISH AND WILDLIFE SERVICE", the second paragraph is revised as follows:

"Copies of the agreement may be obtained at the Department of Transportation, Plans and Bid Documents Section, MS 26, 1120 N Street, Room 200, Sacramento, CA 95814, Telephone 916-654-4490, and are available for inspection at the Department of Transportation at 111 Grand Avenue, Oakland, California 94612. Please contact the Toll Bridge Program Duty Senior, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549, at least 24 hours in advance."

In the Special Provisions, Section 5-1.28, "RELATIONS WITH BAY AREA AIR QUALITY MANAGEMENT DISTRICT (ASBESTOS DEMOLITION/RENOVATION)", the third paragraph is revised as follows:

"An asbestos survey has been completed covering the work areas of this contract. Copies of the report may be obtained and are available for inspection at the Department of Transportation, office of the Toll Bridge Duty Senior at 111 Grand Avenue, Oakland, CA 94612, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549 telephone no. (510) 286-5549. Notify the Toll Bridge Duty Senior at least 24 hours in advance to reserve a copy for review."

In the Special Provisions, Section 5-1.30, "AVAILABLE EXISTING DOCUMENTS," is added as attached.

In the Special Provisions, Section 10-1.03, "WATER POLLUTION CONTROL," the fourth paragraph is revised as follows:

"Copies of the Handbook, CSWPPP, and the Permit are also available for review at the Department of Transportation, 111 Grand Avenue, Oakland, California 94612. Contact the Toll Bridge Duty Senior, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549 to reserve a copy of the document at least 24 hours in advance."

In the Special Provisions, Section 10-1.18, "PROGRESS SCHEDULE (CRITICAL PATH)," is revised as attached.

In the Special Provisions, Section 10-1.25, "CLOSURE REQUIREMENTS AND CONDITIONS," the tenth paragraph is revised as follows:

"For each 10-minute interval, or fraction thereof past the time specified to reopen the closure, the Department will deduct \$2600 per interval from moneys due or that may become due the Contractor under the contract."

In the Special Provisions, Section 10-1.38, "EARTHWORK" the attached subsections "SOLDIER PILE WALL EARTHWORK" and "MEASUREMENT AND PAYMENT (EARTHWORK)" are added after subsection "CONTROLLED LOW STRENGTH MATERIAL".

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In the Special Provisions, Section 10-1.39, "SHOULDER BACKING," subsections "SOLDIER PILE WALL EARTHWORK" and "MEASUREMENT AND PAYMENT (EARTHWORK)" are deleted.

In the Special Provisions, Section 10-1.885, "HORIZONTAL DRAIN", is added as attached.

In the Proposal and Contract, the Engineer's Estimate Items 10, 82,109, 142, 169,170, 185, 190, 191, 204, 231, 232, 233, 235, and 236 are revised, Items 258, 259, and 260 are added and Item 257 is deleted as attached.

To Proposal and Contract book holders:

Replace pages 3, 7, 8, 10, 11, 12, 13, 14, and 15 of the Engineer's Estimate in the Proposal with the attached revised pages 3, 7, 8, 10, 11, 12, 13, 14, and 15 of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

NICK YAMBAO, Chief
Office of Plans, Specifications & Estimates
Division of Office Engineer

Attachments

5-1.30 AVAILABLE EXISTING DOCUMENTS

The following items are available for inspection at Department of Transportation at 111 Grand Avenue, Oakland, California 94612:

- As-Builts for the 1958 Bridge.
- As-Builts for the 1927 Bridge.
- Foundation Recommendation for the New Crockett Interchange Retaining Walls R1 and R2.
- Foundation Recommendation Westbound On-Ramp Wall R3.
- Foundation Recommendation , Vista Del Rio Wall 4.
- Supplemental Foundation Recommendations for the Crockett Interchange (West of Existing Bridge).
- Foundation Recommendations for Crockett Interchange Westbound On-Ramp, Westbound Off-Ramp, Eastbound Off-Ramp.
- South Anchorage Pile Field Acceptance Criteria, Pile Dynamic Analysis, and Pile Load Test Results.
- Bent 7 Pile Field Acceptance Criteria, Pile Dynamic Analysis, and Pile Load Test Results.
- Crockett Viaduct Driveability Analysis.
- Westbound Off-Ramp Driveability Analysis.
- Contract Plans and Specifications for the New Carquinez Bridge Project (EA# 04-013014).
- Foundation Report for the New Carquinez Bridge Project (EA# 04-013014).

Please contact the Toll Bridge Program Duty Senior, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549, at least 24 hours in advance.

10-1.18 PROGRESS SCHEDULE (CRITICAL PATH)

Progress schedules will be required for this contract. Progress schedules shall utilize the Critical Path Method (CPM). Attention is directed to Section 10-1.16, "COOPERATION," and Section 10-1.21, "OBSTRUCTIONS" of these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from the responsibilities specified in Section 7, "Legal Relations and Responsibility," of the Standard Specifications.

DEFINITIONS

The following definitions apply to this section "Progress Schedule (Critical Path)":

- A. Activity: Any task, or portion of a project, which takes time to complete.
- B. Baseline Schedule: The initial CPM schedule representing the Contractor's original work plan, as accepted by the Engineer.
- C. Controlling Operation: The activity considered at the time by the Engineer, within that series of activities defined as the critical path, which if delayed or prolonged, will delay the time of completion of the contract.
- D. Critical Path: The series of activities, which determines the earliest completion of the contract (Forecast Completion Date). This is the longest path of activities having the least amount of float.
- E. Critical Path Method: A mathematical calculation to determine the earliest completion of the contract represented by a graphic representation of the sequence of activities that shows the interrelationships and interdependencies of the elements composing a project.
- F. Current Contract Completion Date: The extended date for completion of the contract shown on the weekly statement of working days furnished by the Engineer in accordance with Section 8-1.06, "Time of Completion," of the Standard Specifications.
- G. Early Completion Time: The difference in time between the current contract completion date and the Contractor's scheduled early forecast completion date as shown on the accepted baseline schedule, or schedule updates and revisions.
- H. Float: The amount of time between the early start date and the late start date, or the early finish date and the late finish date, of any activity or group of activities in the network.
- I. Forecast Completion Date: The completion date of the last scheduled work activity identified on the critical path.
- J. Fragnet: A section or fragment of the network diagram comprised of a group of activities.
- K. Free Float: The amount of time an activity can be delayed before affecting a subsequent activity.
- L. Hammock Activity: An activity added to the network to span an existing group of activities for summarizing purposes.
- M. Milestone: A marker in a network, which is typically used to mark a point in time or denote the beginning or end of a sequence of activities. A milestone has zero duration, but will otherwise function in the network as if it were an activity.
- N. Revision: A change in the future portion of the schedule that modifies logic, adds or deletes activities, or alters activities, sequences, or durations.
- O. Tabular Listing: A report showing schedule activities, their relationships, durations, scheduled and actual dates, and float.
- P. Total Float: The amount of time that an activity may be delayed without affecting the total project duration of the critical path.
- Q. Update: The modification of the CPM progress schedule through a regular review to incorporate actual progress to date by activity, approved time adjustments, and projected completion dates.
- R. Time Scaled Logic Diagram: A schematic display of the logical relationships of project activities, drawn from left to right to reflect project chronology with the positioning and length of the activity representing its duration.
- S. Bar Chart (Gantt Chart): A graphic display of scheduled-related information, activities or other project elements are listed down the left side of the chart, dates are shown across the top, and activity durations are shown as date-placed horizontal bars.

PRECONSTRUCTION SCHEDULING CONFERENCE

The Engineer shall schedule and conduct a Preconstruction Scheduling Conference with the Contractor's Project Manager and Construction Scheduler within seven days after the bidder has received the contract for execution. At this meeting, the requirements of this section of the special provisions will be reviewed with the Contractor. The Contractor shall be prepared to discuss its schedule methodology, proposed sequence of operations, the activity identification system for labeling all work activities, the schedule file numbering system, and any deviations it proposes to make from the Stage Construction Plans. The Engineer shall submit a diskette of a scheduling shell project, displaying an activity code dictionary consisting of fields populated with the Caltrans Scope Breakdown Structure (SBS) Code. The SBS structure will be finalized after submittal of the accepted Baseline schedule. The Contractor shall utilize these codes, and may add other codes as necessary, to group and organize the work activities. Periodically the Engineer may request the Contractor to utilize additional filters, layouts or activity codes to be able to further group or summarize work activities.

Also, the Engineer and the Contractor shall review the requirements for all submittals applicable to the contract and discuss their respective preparation and review durations. All submittals and reviews are to be reflected on the Interim Baseline Schedule and the Baseline Schedule.

INTERIM BASELINE SCHEDULE

Within 15 days after approval of the contract, the Contractor shall submit to the Engineer an Interim Baseline Project Schedule which will serve as the progress schedule for the first 120 days of the project, or until the Baseline Schedule is accepted, whichever is sooner. The Interim Baseline Schedule shall utilize the critical path method. The Interim Baseline Schedule shall depict how the Contractor plans to perform the work for the first 120 days of the contract. Additionally, the Interim Baseline Schedule shall show all submittals required early in the project, and shall provide for all permits, and other non-work activities necessary to begin the work. The Interim Baseline Schedule submittal shall include a 3 1/2 inch floppy diskette which contains the data files used to generate the schedule.

The Engineer shall be allowed 10 days to review the schedule and to provide comments, including the Contractor's application of the supplied scope breakdown structure. The Interim Baseline Schedule does not require Caltrans acceptance but all comments are to be implemented into the Baseline Schedule. Re-submittal of the Interim Baseline Schedule is not required. Late review of the Interim Baseline Schedule shall not restrain the submittal of the Baseline Schedule.

BASELINE SCHEDULE

Within 30 days, after approval of the contract, the Contractor shall submit to the Engineer a Baseline Project Schedule including the incorporation of all comments provided to the Interim Baseline Schedule. The Baseline Schedule shall have a data date of the day prior to the first working day of the contract. The schedule shall not include any actual start dates, actual finish dates, or constraint dates (except for Contract Milestone dates.) The Baseline Schedule shall meet interim milestone dates, contract milestone dates, stage construction requirements, internal time constraints, show logical sequence of activities, and must not extend beyond the number of days originally provided for in the contract.

All task activities shall be assigned to a project calendar. Each calendar shall identify a workweek, and holidays. Use different calendars for work activities that occur on different work schedules. Activities for the preparation and the review of submittals plus fabrication are to be assigned to the same calendar.

The Contractor shall not add job inefficiencies or weather days to a project calendar without prior approval by the Engineer.

The Contractor shall not assign negative lags to any activities.

The Baseline CPM Schedule submitted by the Contractor shall have a sufficient number of activities to assure adequate planning of the project and to permit monitoring and evaluation of progress and the analysis of time impacts. The Baseline Schedule shall depict how the Contractor plans to complete the whole work involved, and shall show all activities that define the critical path. Each activity shall have durations of not more than 20 working days, and not less than one working day unless permitted otherwise by the Engineer. All activities in the schedule, with the exception of the first and last activities, shall have a minimum of one predecessor and a minimum of one successor.

The Baseline Schedule shall not attribute negative float to any activity. Float shall not be considered as time for the exclusive use of or benefit of either the State or the Contractor but shall be considered as a jointly owned, expiring resource available to the project and shall not be used to the financial detriment of either party. Any accepted schedule, revision or update having an early completion date shall show the time between the early completion date and the current Contract Completion Date as "total float".

The Contractor shall be responsible for assuring that all work sequences are logical and the network shows a coordinated plan for complete performance of the work. Failure of the Contractor to include any element of work required for the performance of the contract in the network shall not relieve the Contractor from completing all work within the time limit specified for completion of the contract. If the Contractor fails to define any element of work, activity or logic, the Contractor in the next monthly update or revision of the schedule shall correct it.

The Baseline Schedule shall be supplemented with resource allocations for every task activity to a level of detail that facilitates report generation based on labor craft and equipment class for the Contractor and subcontractors. The Contractor shall use average composite crews to display the labor loading of on-site construction activities. On the P3 resource dictionary, each resource should have the normal and maximum limits for the specified period of time. Based on the resource limits, the Contractor shall optimize and level labor to reflect a reasonable plan for accomplishing the work of the contract and to assure that resources are not duplicated in concurrent activities. Along with the baseline progress schedule, the Contractor shall also submit to the Engineer time-scaled resource histograms of the labor crafts and equipment classes to be utilized on the contract.

The Contractor shall not create hammock activities for the purpose of resources loading.

The Contractor shall require each subcontractor to submit in writing a statement certifying that the subcontractor has concurred with the Contractor's CPM, including major updates, and that the subcontractor's related schedule has been incorporated accurately, including the duration of activities, labor and equipment loading. Should the Baseline Schedule or schedule update, submitted for acceptance, show variances from the requirements of the contract, the Contractor shall make specific mention of the variations in the letter of transmittal, in order that, if accepted, proper adjustments to the project schedule can be made. The Contractor will not be relieved of the responsibility for executing the work in strict accordance with the requirements of the contract documents. In the event of a conflict between the requirements of the contract documents and the information provided or shown on an accepted schedule, the requirements of the contract documents shall take precedence.

Each schedule submitted to the Engineer shall comply with all limits imposed by the contract, with all specified intermediate milestone and contract completion dates, and with all constraints, restraints or sequences included in the contract. The degree of detail shall include factors including, but not limited to:

- A. Physical breakdown of the project;
- B. Contract milestones and completion dates, substantial completion dates, constraints, restraints, sequences of work shown in the contract, the planned substantial completion date, and the final completion date;
- C. Type of work to be performed, the sequences, and the major subcontractors involved;
- D. All purchases, submittals, submittal reviews, manufacture, fabrication, tests, delivery, and installation activities for all major materials and equipment, including submittal of requests for audits of manufacturers and fabricators in conformance with "Manufacturing and Fabrication Qualification Audit for Materials" of these special provisions;
- E. Preparation, submittal and approval of shop and working drawings and material samples, showing time, as specified elsewhere, for the Engineer's review. The same time frame shall be allowed for at least one resubmittal on all major submittals so identified in the contract documents;
- F. Identification of interfaces and dependencies with preceding, concurrent and follow-on contractors, railroads, and utilities as shown on the plans or specified in the specifications;
- G. Identification of each and every utility relocation and interface as a separate activity, including activity description and responsibility coding that identifies the type of utility and the name of the utility company involved;
- H. Actual tests, submission of test reports, and approval of test results;
- I. All start-up, testing, training, and assistance required under the Contract;
- J. Punchlist and final clean-up;
- K. Identification of any manpower, material, or equipment restrictions, as well as any activity requiring unusual shift work, such as double shifts, 6-day weeks, specified overtime, or work at times other than regular days or hours;
- L. Identification of each and every ramp closing and opening event as a separate one-day activity, including designation by activity coding and description that it is a north-bound, south-bound, east-bound, west-bound, and entry or exit ramp activity;
- M. Separate resources graphs for the Contract's labor, equipment and critical path labor, with an accompanying analysis of each and explanation for any variances (i.e., example front-end resource loading of schedules); and
- N. Equipment and labor shall be differentiated by a cost account code within the resource dictionary.

The Baseline Schedule submittal shall include a 3 1/2 inch floppy diskette which contains the data files used to generate the schedule, a schedule narrative describing the critical path, narratives providing additional schedule detail as requested by the Engineer and all schedule reports.

The Engineer shall be allowed 15 days to review and accept or reject the baseline project schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 5 days, at which time a new 15 day review period by the Engineer will begin.

PROJECT SCHEDULE REPORTS

Schedules submitted to the Engineer including Interim Baseline, Baseline, and update schedules shall include time scaled network diagrams in a layout format requested by the Engineer. The network diagrams submitted to the Engineer shall also be accompanied by four computer-generated mathematical analysis tabular reports for each activity included in the project schedule. The reports (8 1/2" x 11" size) shall include a network diagram report showing the activity columns only, a predecessor and successor report, a resource report (Interim Baseline and Baseline Schedules), and a scheduling and leveling calculation report. The network diagram reports shall include, at a minimum, the following for each activity:

- A. Activity number and description;
- B. Activity codes;
- C. Original, actual and remaining durations;
- D. Early start date (by calendar date);
- E. Early finish date (by calendar date);
- F. Actual start date (by calendar date);
- G. Actual finish date (by calendar date);
- H. Late start date (by calendar date);
- I. Late finish date (by calendar date);
- J. Identify activity calendar ID;
- K. Total Float and Free Float, in work days; and
- L. Percentage complete.

Network diagrams shall be sorted and grouped in a format requested by the Engineer reflecting the project breakdown per the Caltrans scope breakdown structure codes. They shall show a continuous flow of information from left to right per the project sorting and grouping codes. E.g., project milestones, submittals sub-grouped by description, and the construction activities sub-grouped by the scope breakdown structure. The primary paths of criticality shall be clearly and graphically identified on the networks. The network diagram shall be prepared on E-size sheets (36" x 48"), shall have a title block in the lower right-hand corner, and a timeline on each page. Exceptions to the size of the network sheets and the use of computer graphics to generate the networks shall be subject to the approval of the Engineer.

Schedule network diagrams the tabular reports shall be submitted to the Engineer for acceptance in the following quantities:

- A. 2 sets of the Network Diagrams;
- B. 2 copies of the tabular reports (8 1/2" x 11" size); and
- C. 3 computer diskettes.

WEEKLY SCHEDULE MEETINGS

The Engineer and the Contractor shall hold weekly scheduling meetings to discuss the near term schedule activities, to address any long-term schedule issues, and to discuss any relevant technical issues. The Contractor shall develop a rolling 4-week schedule identifying the previous week worked and a 3-week look ahead. It shall provide sufficient detail to include the actual and planned activities of the Contractor and all the subcontractors for offsite and construction activities, addressing all activities to be performed and to identify issues requiring engineering action or input.

Each activity in the 4 week rolling schedule should be identified by an associated CPM schedule activity ID numbering system. This schedule should not be hand written. To create the 4 weeks rolling schedules, the Contractor should utilize the use of EXCEL spreadsheet, or Primavera scheduling software, as acceptable by the Engineer. The Engineer will provide the format of the schedule. This schedule should be electronically submitted to the Engineer one day prior to the scheduled meeting date.

MONTHLY UPDATE SCHEDULES

The Contractor shall submit a Monthly Update Schedule to the Engineer once in each month within 5 days of the data date. The proposed update schedule prepared by the Contractor shall include all information available as of the 20th calendar day of the month, or other data date as established by the Engineer. A detailed list of all proposed schedule changes such as logic, duration, lead/lag, forecast completion date, additions and deletions shall be submitted with the update.

The monthly update of the schedule shall focus on the period from the last update to the current cut-off data date. Changes to activities or logic beyond the data date are classified as revisions and need to be addressed per the schedule revision section of this specification. Activities that have either started or finished shall be reported as they actually occurred and designated as complete, if actually completed. For activities in progress that are forecasted to complete longer than planned, the remaining durations shall be revised, not the original durations. All out of sequence activities are to be reviewed and their relationships either verified or changed.

The Monthly Update Schedule submitted to the Engineer shall be accompanied by a Schedule Narrative Report. The report shall describe the physical progress during the report period, plans for continuing the work during the forthcoming report period, actions planned to correct any negative float, and an explanation of potential delays or problems and their estimated impact on performance, milestone completion dates, forecast completion date, and the overall project completion date. In addition, alternatives for possible schedule recovery to mitigate any potential delay or cost increases shall be included for consideration by the Engineer. The report shall follow the outline set forth below:

Contractor's Schedule Narrative Report Outline:

- A. Contractor's Transmittal Letter;
- B. Work completed during the period;
- C. Description of the current critical path;
- D. Description of current problem areas;
- E. Current and anticipated delays;
 - 1. Cause of the delay;
 - 2. Corrective action and schedule adjustments to correct the delay; and
 - 3. Impact of the delay on other activities, milestones, and completion dates;
- F. Changes in construction sequences;
- G. Pending items and status thereof;
 - 1. Permits;
 - 2. Change Orders;
 - 3. Time Extensions; and
 - 4. Non-Compliance Notices;
- H. Contract completion date(s) status;
 - 1. Ahead of schedule and number of days; and
 - 2. Behind schedule and number of days; and
- I. Include updated Network Diagram and Reports.

The Contractor shall provide to the Engineer a 3 1/2" electronic disk of the schedule, together with printed copies of the network diagrams and tabular reports described under "Project Schedule Reports", and the Schedule Narrative Report.

Portions of the network diagram on which all activities are complete need not be reprinted and submitted in subsequent updates. However, the electronic disk file of the submitted schedule and the related reports shall constitute a clear record of progress of the work from award of contract to final completion.

On a date determined by the Engineer, the Contractor shall meet with the Engineer to review the monthly schedule update. At the monthly progress meeting, the Contractor and the Engineer shall review the updated schedule and shall discuss the content of the Narrative Report. The Engineer shall be allowed 10 days after the meeting to review and accept or reject the update schedule submitted. Rejected schedules shall be resubmitted to the Engineer within 5 days, at which time a new 5 day review period by the Engineer will begin. All efforts shall be made between the Engineer and the Contractor to complete the review and the acceptance process prior to the next update schedule data date. To expedite the process a second meeting between the Engineer and the Contractor shall be held.

SCHEDULE REVISIONS

If the Contractor desires to make a change to the accepted schedule, the Contractor shall request permission from the Engineer in writing, stating the reasons for the change, and proposed revisions to activities, logic and duration. The Contractor shall submit for acceptance an analysis showing the effect of the revisions on the entire project. The analysis shall include:

- A. An updated schedule not including the revisions. The schedule shall have a data date just prior to implementing the proposed revisions and includes a project completion date;
- B. A revised schedule that includes the proposed revisions. The schedule will have the same data date as the updated schedule and include a project completion date;
- C. The Contractor should add resources for all new activities, also adjust resources for those activities that their remaining duration were changed;
- D. A narrative explanation of the revisions and their impact to the schedule; and
- E. Computer files of the updated schedule and the revised schedule sequentially numbered or renamed for archive (record) purposes.

The Engineer will provide a response within 10 days. No revision to the accepted baseline schedule or the schedule updates shall be made without the prior written approval of the Engineer.

The Engineer will request the Contractor to submit a proposed revised schedule within 15 days when:

- A. there is a significant change in the Contractor's operations that will affect the critical path;
- B. the current updated schedule indicates that the contract progress is 4 weeks or more behind the planned schedule, as determined by the Engineer; or
- C. the Engineer determines that an approved or anticipated change will impact the critical path, milestone or completion dates, contract progress, or work by other contractors.

The Engineer shall be allowed 10 days to review and accept or reject a schedule revision. Rejected schedule revisions shall be revised and resubmitted to the Engineer within 10 days, at which time a new 10 day review period by the Engineer will begin. Only upon approval of a change by the Engineer shall it be reflected in the next schedule update submitted by the Contractor.

SCHEDULE TIME EXTENSION REQUESTS

When the Contractor requests a time extension due to contract change orders or delays, the Contractor shall submit to the Engineer a written Time Impact Analysis illustrating the influence of each change or delay on the current contract completion date or milestone completion date, utilizing the current accepted schedule. Each Time Impact Analysis shall include a schedule update and schedule revision, both with the same data dates, demonstrating how the Contractor proposes to incorporate the Change Order or delay into the current schedule. The schedule revision shall include the sequence of activities and any revisions to the existing activities to demonstrate the influence of the delay, the proposed method for incorporating the delay, and its impact into the schedule.

Each Time Impact Analysis shall demonstrate the estimated time impact based on the events of delay, the anticipated or actual date of the contract change order work performance, the status of construction at that point in time, and the event time computation of all activities affected by the change or delay. The event times used in the analysis shall be those included in the latest update of the current schedule in effect at the time the change or delay was encountered.

Time extensions will be granted only to the extent that equitable time adjustments for the activity or activities affected exceed the total or remaining float along the critical path of activities at the time of actual delay, or at the time the contract change order work is performed. Float time is not for the exclusive use or benefit of the Engineer or the Contractor, but is an expiring resource available to all parties as needed to meet contract milestones and the contract completion date. Time extensions will not be granted nor will delay damages be paid unless:

- A. the delay is beyond the control and without the fault or negligence of the Contractor and its subcontractors or suppliers, at any tier; and
- B. the delay extends the actual performance of the work beyond the applicable current contract completion date and the most recent date predicted for completion of the project on the accepted schedule update current as of the time of the delay or as of the time of issuance of the contract change order.

Time Impact Analyses shall be submitted in triplicate within 15 days after the delay occurs or after issuance of the contract change order. A schedule file diskette is also to be submitted.

Acceptance or rejection of each Time Impact Analysis by the Engineer will be made within 15 days after receipt of the Time Impact Analysis, unless subsequent meetings and negotiations delay the review. A copy of the Time Impact Analysis accepted by the Engineer shall be returned to the Contractor and the accepted schedule revisions illustrating the influence of the contract change orders or delays shall be incorporated into the project schedule during the first update after acceptance.

FINAL SCHEDULE UPDATE

Within 15 days after the acceptance of the contract by the Director, the Contractor shall submit a final update of the schedule with actual start and actual finish dates for all activities. This schedule submission shall be accompanied by a certification, signed by an officer of the company and the Contractor's Project Manager stating "To the best of my knowledge, the enclosed final update of the project schedule reflects the actual start and completion dates of the activities contained herein."

EQUIPMENT AND SOFTWARE

The Contractor shall provide for the State's exclusive possession and use a complete computer system specifically capable of creating, storing, updating and producing CPM schedules. Before delivery and setup of the computer system, the Contractor shall submit to the Engineer for approval a detailed list of all computer hardware and software the Contractor proposes to furnish. The minimum computer system to be furnished shall include the following:

- A. Complete computer system, including keyboard, mouse, 20 inch color SVGA monitor (1024x768 pixels), Intel Pentium 350 MHz microprocessor chip, or equivalent;
- B. Computer operating system software, compatible with the selected processing unit, for Windows 95 or later or equivalent;
- C. Minimum sixty-four (64) megabytes of random access memory (RAM);
- D. A 3.2 gigabytes minimum hard disk drive, a 1.44 megabyte 3 1/2 inch floppy disk drive, 32x speed minimum CD-ROM drive, Ethernet card and 56k modem;
- E. A color-ink-jet plotter with a minimum 36 megabyte RAM, capable of 300 dots per inch color, 600 dots per inch monochrome, or equivalent, capable of printing fully legible, timescaled charts, and network diagrams, in four colors, with a minimum size of 36 inches by 48 inches (E size) and is compatible with the selected system, an HP Design Jet 1055 CM or equivalent, plotter stand, roll paper assembly and automatic paper cutter, and provide plotter paper and ink cartridges throughout the contract;
- F. CPM software shall be Primavera Project Planner, the latest version for Windows 95, or later;
- G. Scheduler Analyzer Pro or equivalent (a suite of programs to assist in schedule analysis) in the latest version for Windows 95, Windows NT or later; and
- H. Microsoft Office Software, the latest version for Windows 95, Windows NT or later and McAfee Virus software or equivalent.

The computer hardware and software furnished shall be compatible with that used by the Contractor for the production of the CPM progress schedule required by the Contract, and shall include original instruction manuals and other documentation normally provided with the software.

The Contractor shall furnish, install, set up, maintain and repair the computer hardware and software ready for use at a location determined by the Engineer. The hardware and software shall be installed and ready for use by the first submission of the baseline schedule. The Contractor shall provide 24 hours of formal training for the Engineer, and three other agents of the department designated by the Engineer, in the use of the hardware and software to include schedule analysis, reporting, and resource and cost allocations. An authorized vendor of Project Primavera shall perform the training.

All computer hardware and software furnished shall remain the property of the Contractor and shall be removed by the Contractor upon acceptance of the contract when no claims involving contract progress are pending. When claims involving contract progress are pending, computer hardware or software shall not be removed until the final estimate has been submitted to the Contractor.

PAYMENT

Progress schedule (critical path) will be paid for at a lump sum price. The contract lump sum price paid for progress schedule (critical path) shall include full compensation for furnishing all labor, materials (including computer hardware and software), tools, equipment, and incidentals; and for doing all the work involved in preparing, furnishing, updating and revising CPM progress schedules. Also for maintaining and repairing the computer hardware and training the Engineer in the use of the computer hardware and software as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

Payments for progress schedule (critical path) will be made as follows:

- A. Interim baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.
- B. Baseline schedule accepted, then 10 percent payment for progress schedule (critical path) will be made.
- C. Monthly update schedules accepted, then 75 percent payment for progress schedule (critical path) will be made equally for each update.
- D. Final schedule update accepted, then 5 percent payment for progress schedule (critical path) will be made.

The Department will retain an amount equal to 25 percent of the estimated value of the work performed during the first estimate period in which the Contractor fails to submit an interim baseline, baseline, revised or updated CPM schedule conforming to the requirements of this section, as determined by the Engineer. Thereafter, on subsequent successive estimate periods the percentage the Department will retain will be increased at the rate of 25 percent per estimate period in which acceptable CPM progress schedules have not been submitted to the Engineer. Retention's for failure to submit acceptable CPM progress schedules shall be additional to all other retention's provided for in the contract. The retention for failure to submit acceptable CPM progress schedules will be released for payment on the next monthly estimate for partial payment following the date that acceptable CPM progress schedules are submitted to the Engineer.

The adjustment provisions in Section 4-1.03, "Changes," of the Standard Specifications, shall not apply to the item of progress schedule (critical path). Adjustments in compensation for the project schedule will not be made for any increased or decreased work ordered by the Engineer in furnishing project schedules.

SOLDIER PILE WALL EARTHWORK

General

Cross sections of the site in the vicinity of the soldier pile walls are available for inspection at the Department of Transportation, District 4 at 111 Grand Avenue, Oakland, California 94612. Please contact the Toll Bridge Program Duty Senior, email duty_senior_tollbridge_district04@dot.ca.gov; telephone number (510) 286-5549, at least 24 hours in advance.

The Contractor shall submit to the Engineer working drawings and a construction sequence for the proposed method of soldier pile wall construction for the site. The drawings shall conform to the provisions in Section 5-1.02, "Plans and Working Drawings," of the Standard Specifications. The drawings shall be signed by an engineer who is registered as a Civil Engineer in the State of California. One set of the drawings and construction sequence, and one copy of the design calculations, shall be furnished to the Engineer. The working drawings and construction sequence shall include, but not be limited to, defining order of work, traffic control, method of installation of soldier piles, method of placing lagging, limits of structure excavation lifts, and type of drilling and excavation equipment to be used. The Contractor shall allow one week after complete drawings and all support data are submitted for the review and approval of the proposed method of soldier pile wall construction.

Should the Engineer fail to complete the review and approval within the time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in working drawings and construction sequence plan review and approval for the soldier pile wall, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays" of the Standard Specifications.

Structure Excavation (Soldier Pile Wall)

Excavation and construction of the soldier wall shall proceed from the top down in lifts.

Care shall be taken in performing structure excavation (soldier pile wall) for placement of lagging such that a minimal void behind the lagging is required to be backfilled.

Excavation in front of the wall shall not extend more than 600 mm below the level of the tiebacks prior to successful testing, stressing and lockoff of the tiebacks.

The Engineer will determine whether boulders or portions of boulders that interfere with the placement of the lagging shall be removed. The additional earthwork involved in removing boulders or portions of boulders shall be performed by the Contractor as directed by the Engineer, and such additional work will be paid for as extra work as provided in Section 4-1.03D of the Standard Specifications.

At the end of the work shift, lagging shall be in place the full height of the exposed excavation face.

Structure Backfill (Soldier Pile Wall)

Material for structure backfill behind lagging shall conform to the provisions in Section 19-3, "Structure Excavation and Backfill," of the Standard Specifications. Structure backfill behind lagging shall be compacted by hand tamping, mechanical compaction or other means approved by the Engineer.

Structure backfill in fill areas behind the lagging shall be keyed into the existing or excavated back slope.

Backfill behind the lagging shall be in place and compacted to at least 1 m above the level of the tiebacks prior to drilling for the tiebacks. The remainder of the backfill behind the lagging shall be placed and compacted after tiebacks are drilled, stressed and grouted.

Lean Concrete Backfill

Lean concrete backfill shall conform to the provisions for slurry cement backfill in Section 19-3.062, "Slurry Cement Backfill," of the Standard Specifications, except that aggregate shall be sand suitable for making commercial quality concrete.

Lean concrete backfill in the portions of the drilled holes occupied by lagging and in front of the soldier pile flanges shall be removed as necessary to install lagging.

Concrete Backfill

Class 1 formed concrete and concrete backfill encasing the steel soldier piles below the lagging shall be Class 1 concrete conforming to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications and these special provisions.

MEASUREMENT AND PAYMENT (EARTHWORK)

Measurement and payment for earthwork shall conform to all provisions for "Measurement" and "Payment" in Section 19, "Earthwork," of the Standard Specifications and these special provisions.

Pervious backfill material in connection with bridge work will be measured and paid for by the cubic meter as structure backfill (bridge).

If structure excavation or structure backfill involved in bridges is not otherwise designated by type, and payment for the structure excavation or structure backfill has not otherwise been provided for in the Standard Specifications or these special provisions, the structure excavation or structure backfill will be paid for at the contract price per cubic meter for structure excavation (bridge) or structure backfill (bridge).

Structure excavation designated as (Type D), for footings at the locations shown on the plans, will be measured and paid for by the cubic meter as structure excavation (Type D). Ground water or surface water is expected to be encountered at these locations, but seal course concrete is not shown or specified. Structure excavation for footings at locations not designated on the plans as structure excavation (Type D), and where ground or surface water is encountered, will be measured and paid for by the cubic meter as structure excavation (bridge).

Lean concrete backfill will be measured and paid for by the cubic meter as lean concrete backfill in the same manner specified for structure backfill in Section 19-3.07, "Measurement," and Section 19-3.08, "Payment," of the Standard Specifications.

Concrete backfill encasing steel soldier piles below the lagging and Class 1 formed concrete will be measured and paid for by the cubic meter as concrete backfill in the same manner specified for structure backfill in Section 19-3.07, "Measurement," and Section 19-3.08, "Payment," of the Standard Specifications.

Full compensation for removing lean concrete backfill shall be considered as included in the contract price paid per cubic meter for structure excavation (soldier pile wall) and no additional compensation will be allowed therefor.

Full compensation for working drawings and construction sequence, and temporary supports and shoring, if required, for soldier pile wall construction shall be considered as included in the contract price paid per cubic meter for structure excavation (soldier pile wall) and no additional compensation will be allowed therefor.

Full compensation for filter fabric and geocomposite drain shall be considered as included in the contract price paid per cubic meter for structure backfill (soldier pile wall) and no additional compensation will be allowed therefor.

Roadway excavation (Type A) will be measured by the cubic meter in the same manner specified for roadway excavation in conformance with the provisions in Section 19, "Earthwork," of the Standard Specifications and will be paid for at the contract price per cubic meter for roadway excavation (Type A).

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in performing roadway excavation (Type A) completely as shown on the plans, as specified in the Standards Specifications and these special provisions, and as directed by the Engineer shall be considered as included in the contract price paid per cubic meter for roadway excavation (Type A).

CONTRACT NO. 04-013054
ADDED PER ADDENDUM NO. 1 DATED SEPTEMBER 22, 2000

10-1.885 HORIZONTAL DRAIN

Horizontal drains, as shown on the plans, shall conform to the provisions in Section 68-2, "Horizontal Drains," of the Standard Specifications.

ENGINEER'S ESTIMATE

04-013054

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	019450	TEMPORARY CREEK DIVERSION SYSTEM	LS	LUMP SUM	LUMP SUM	
2	019451	ELECTRONIC MOBILE DAILY DIARY COMPUTER SYSTEM DATA DELIVERY	LS	LUMP SUM	LUMP SUM	
3	070018	TIME RELATED OVERHEAD	LS	LUMP SUM	LUMP SUM	
4	070010	PROGRESS SCHEDULE (CRITICAL PATH)	LS	LUMP SUM	LUMP SUM	
5	019452	NON-STORM WATER DISCHARGE	LS	LUMP SUM	LUMP SUM	
6	074019	PREPARE STORM WATER POLLUTION PREVENTION PLAN	LS	LUMP SUM	LUMP SUM	
7	074020	WATER POLLUTION CONTROL	LS	LUMP SUM	LUMP SUM	
8	074029	TEMPORARY SILT FENCE	M	900		
9	019453	TEMPORARY COVER	M2	1000		
10	019454	TEMPORARY DRAINAGE INLET PROTECTION	EA	79		
11	121100	TEMPORARY EROSION CONTROL	M2	26 900		
12	019455	TEMPORARY CONCRETE WASHOUT	EA	10		
13	019456	TEMPORARY FENCE (TYPE ESA)	M	200		
14	019457	TEMPORARY ROCK BAG BARRIER	M	160		
15	019458	TEMPORARY ENTRANCE/EXIT	LS	LUMP SUM	LUMP SUM	
16 (S)	120090	CONSTRUCTION AREA SIGNS	LS	LUMP SUM	LUMP SUM	
17 (S)	120100	TRAFFIC CONTROL SYSTEM	LS	LUMP SUM	LUMP SUM	
18 (S)	120120	TYPE III BARRICADE	EA	20		
19	120149	TEMPORARY PAVEMENT MARKING (PAINT)	M2	35		
20	120159	TEMPORARY TRAFFIC STRIPE (PAINT)	M	15 700		

ENGINEER'S ESTIMATE**04-013054**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81 (F)	048329	CLASS 1 CONCRETE BACKFILL	M3	1460		
82	194001	DITCH EXCAVATION	M3	7.7		
83 (F)	197020	EARTH RETAINING STRUCTURE	M2	1056		
84	198007	IMPORTED MATERIAL (SHOULDER BACKING)	M3	27		
85	019462	GEOGRID	M2	19 800		
86 (S)	200001	HIGHWAY PLANTING	LS	LUMP SUM	LUMP SUM	
87	200101	IMPORTED TOPSOIL	M3	4560		
88	203001	EROSION CONTROL (BLANKET)	M2	78		
89 (S)	203003	STRAW (EROSION CONTROL)	TONN	11		
90 (S)	203024	COMPOST (EROSION CONTROL)	KG	2160		
91 (S)	203014	FIBER (EROSION CONTROL)	KG	920		
92 (S)	203021	FIBER ROLLS	M	4110		
93 (S)	203045	PURE LIVE SEED (EROSION CONTROL)	KG	270		
94 (S)	203056	COMMERCIAL FERTILIZER (EROSION CONTROL)	KG	330		
95 (S)	203061	STABILIZING EMULSION (EROSION CONTROL)	KG	580		
96 (S)	204099	PLANT ESTABLISHMENT WORK	LS	LUMP SUM	LUMP SUM	
97 (S)	208000	IRRIGATION SYSTEM	LS	LUMP SUM	LUMP SUM	
98	048330	NPS 1.5 SUPPLY LINE (BRIDGE)	M	140		
99	208039	NPS 4 SUPPLY LINE (BRIDGE)	M	140		
100	048331	MODIFY NPS 4 SUPPLY LINE (BRIDGE)	M	22		

ENGINEER'S ESTIMATE**04-013054**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101	208731	200 MM CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONDUIT	M	41		
102	250401	CLASS 4 AGGREGATE SUBBASE	M3	9510		
103	260301	CLASS 3 AGGREGATE BASE	M3	1840		
104	280000	LEAN CONCRETE BASE	M3	4970		
105	290211	ASPHALT TREATED PERMEABLE BASE	M3	440		
106	390095	REPLACE ASPHALT CONCRETE SURFACING	M3	23		
107	390155	ASPHALT CONCRETE (TYPE A)	TONN	18 000		
108	390171	ASPHALT CONCRETE BASE (TYPE A)	TONN	860		
109	394002	PLACE ASPHALT CONCRETE (MISCELLANEOUS AREA)	M2	420		
110	394040	PLACE ASPHALT CONCRETE DIKE (TYPE A)	M	1650		
111	394048	PLACE ASPHALT CONCRETE DIKE (TYPE E)	M	360		
112	394049	PLACE ASPHALT CONCRETE DIKE (TYPE F)	M	350		
113	397001	ASPHALTIC EMULSION (PAINT BINDER)	TONN	190		
114	401000	CONCRETE PAVEMENT	M3	9610		
115	048332	DRILLED HOLE (750 MM)	M	655		
116	048333	DRILLED HOLE (900 MM)	M	3108		
117	048334	DRILLED HOLE (1000 MM)	M	325		
118	490505	FURNISH STEEL PILING (HP 250 X 62)	M	312		
119 (S)	490506	DRIVE STEEL PILE (HP 250 X 62)	EA	21		
120	490570	FURNISH STEEL PILING (HP 360 X 174)	M	3613		

ENGINEER'S ESTIMATE**04-013054**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141 (F)	510086	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N)	M3	190		
142 (F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	M3	215		
143	510526	MINOR CONCRETE (BACKFILL)	M3	25.45		
144 (F)	048345	LIGHTWEIGHT CONCRETE (BRIDGE)	M3	1729		
145 (F)	511064	FRACTURED RIB TEXTURE	M2	920		
146	511106	DRILL AND BOND DOWEL	M	70		
147 (F)	513501	CONCRETE CLOSURE WALL	M2	52		
148 (S)	518050	PTFE BEARING	EA	19		
149 (S)	048346	PTFE BEARING (SPHERICAL)	EA	48		
150 (S)	519127	JOINT SEAL ASSEMBLY (MR 90 MM)	M	8		
151 (S)	519128	JOINT SEAL ASSEMBLY (MR 100 MM)	M	44		
152 (S)	519129	JOINT SEAL ASSEMBLY (MR 101 MM - 160 MM)	M	8		
153 (S)	519130	JOINT SEAL ASSEMBLY (MR 161 MM - 240 MM)	M	52		
154 (S)	519132	JOINT SEAL ASSEMBLY (MR 321 MM - 400 MM)	M	62		
155 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	KG	4 735 500		
156 (S)	048347	WELDED HEADED BAR REINFORCEMENT	EA	47 025		
157 (S-F)	520103	BAR REINFORCING STEEL (RETAINING WALL)	KG	87 400		
158 (S-F)	520110	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	KG	388 000		
159 (F)	530100	SHOTCRETE	M3	152		
160 (S-F)	550102	STRUCTURAL STEEL (BRIDGE)	KG	60 080		

ENGINEER'S ESTIMATE

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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
161 (S-F)	550203	FURNISH STRUCTURAL STEEL (BRIDGE)	KG	395 200		
162 (S-F)	550204	ERECT STRUCTURAL STEEL (BRIDGE)	KG	395 200		
163 (S-F)	048348	ISOLATION CASING	KG	12 512		
164 (S-F)	560218	FURNISH SIGN STRUCTURE (TRUSS)	KG	35 435		
165 (S-F)	560219	INSTALL SIGN STRUCTURE (TRUSS)	KG	35 435		
166 (S)	561009	920 MM CAST-IN-DRILLED-HOLE CONCRETE PILE (SIGN FOUNDATION)	M	44		
167	562002	METAL (BARRIER MOUNTED SIGN)	KG	160		
168	562004	METAL (RAIL MOUNTED SIGN)	KG	400		
169	566011	ROADSIDE SIGN - ONE POST	EA	13		
170	566012	ROADSIDE SIGN - TWO POST	EA	13		
171	568001	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	14		
172	568007	INSTALL SIGN OVERLAY	M2	2.8		
173	568016	INSTALL SIGN PANEL ON EXISTING FRAME	M2	6		
174 (F)	575004	TIMBER LAGGING	M3	458		
175	048349	CLEAN AND PAINT SOLDIER PILE	LS	LUMP SUM	LUMP SUM	
176 (S)	590115	CLEAN AND PAINT STRUCTURAL STEEL	LS	LUMP SUM	LUMP SUM	
177 (S)	590135	SPOT BLAST CLEAN AND PAINT UNDERCOAT	M2	2543		
178 (S)	048350	WORK AREA MONITORING (LOCATION A)	LS	LUMP SUM	LUMP SUM	
179 (S)	048351	WORK AREA MONITORING (LOCATION B)	LS	LUMP SUM	LUMP SUM	
180	620901	150 MM ALTERNATIVE PIPE CULVERT	M	0.8		

ENGINEER'S ESTIMATE

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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
181	620904	300 MM ALTERNATIVE PIPE CULVERT	M	2		
182	620909	450 MM ALTERNATIVE PIPE CULVERT	M	600		
183	620913	600 MM ALTERNATIVE PIPE CULVERT	M	140		
184	620924	900 MM ALTERNATIVE PIPE CULVERT	M	630		
185	650069	450 MM REINFORCED CONCRETE PIPE	M	940		
186	650075	600 MM REINFORCED CONCRETE PIPE	M	390		
187	650079	900 MM REINFORCED CONCRETE PIPE	M	130		
188	650084	1200 MM REINFORCED CONCRETE PIPE	M	110		
189	664009	300 MM CORRUGATED STEEL PIPE (1.63 MM THICK)	M	30		
190	664010	300 MM CORRUGATED STEEL PIPE (2.01 MM THICK)	M	19		
191	664014	450 MM CORRUGATED STEEL PIPE (1.63 MM THICK)	M	39		
192	681134	80 MM PLASTIC PIPE (EDGE DRAIN)	M	370		
193	682049	CLASS 3 PERMEABLE MATERIAL (BLANKET)	M3	7250		
194	685067	200 MM ALTERNATIVE PIPE UNDERDRAIN	M	2250		
195	019463	300 MM TRENCH DRAIN	M	1890		
196	019464	400 MM TRENCH DRAIN	M	22		
197	703542	300 MM WELDED STEEL PIPE (2.67 MM THICK)	M	3.3		
198	705336	450 MM ALTERNATIVE FLARED END SECTION	EA	3		
199	721009	ROCK SLOPE PROTECTION (FACING, METHOD B)	M3	1.9		
200	725001	SACKED CONCRETE SLOPE PROTECTION	M3	3.7		

ENGINEER'S ESTIMATE

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Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
201	729010	ROCK SLOPE PROTECTION FABRIC	M2	7		
202	731502	MINOR CONCRETE (MISCELLANEOUS CONSTRUCTION)	M3	640		
203 (F)	731517	MINOR CONCRETE (GUTTER)	M	528		
204 (S-F)	750001	MISCELLANEOUS IRON AND STEEL	KG	11 210		
205 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	54 430		
206 (S-F)	750505	BRIDGE DECK DRAINAGE SYSTEM	KG	36 160		
207 (S-F)	800386	CHAIN LINK FENCE (TYPE CL-1.2, VINYL-CLAD)	M	300		
208 (S)	800391	CHAIN LINK FENCE (TYPE CL-1.8)	M	550		
209 (S-F)	800392	CHAIN LINK FENCE (TYPE CL-1.8, VINYL-CLAD)	M	232		
210 (S)	802592	2.4 M CHAIN LINK GATE (TYPE CL-1.8)	EA	1		
211 (S)	019465	9.6 M CHAIN LINK GATE (TYPE CL-1.8)	EA	1		
212	019466	4.8 M CHAIN GATE (TYPE CL-1.8)	EA	1		
213	820107	DELINEATOR (CLASS 1)	EA	150		
214	019467	CONCRETE BARRIER MARKER	EA	161		
215	820141	OBJECT MARKER (TYPE K-1)	EA	1		
216	019468	OBJECT MARKER (TYPE Q)	EA	6		
217 (S)	832002	METAL BEAM GUARD RAILING (STEEL POST)	M	720		
218 (S-F)	833032	CHAIN LINK RAILING (TYPE 7)	M	4		
219 (F)	833125	CONCRETE BARRIER (TYPE 25)	M	3267		
220 (F)	833165	CONCRETE BARRIER (TYPE 27B MODIFIED)	M	120		

ENGINEER'S ESTIMATE

04-013054

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
221 (F)	833187	CONCRETE BARRIER (TYPE 27 MODIFIED)	M	471		
222 (F)	048352	CONCRETE BARRIER (TYPE 41)	M	565		
223 (S-F)	048353	BARRIER MOUNTED BRIDGE RAILING	M	591		
224 (S-F)	048354	PEDESTRIAN RAILING	M	584		
225 (S)	839559	TERMINAL SYSTEM (TYPE ET)	EA	1		
226 (S)	839565	TERMINAL SYSTEM (TYPE SRT)	EA	15		
227 (S)	839591	CRASH CUSHION, SAND FILLED	EA	2		
228	839701	CONCRETE BARRIER (TYPE 60)	M	100		
229	839702	CONCRETE BARRIER (TYPE 60A)	M	1215		
230 (F)	839704	CONCRETE BARRIER (TYPE 60D)	M	300		
231 (S)	840515	THERMOPLASTIC PAVEMENT MARKING	M2	330		
232 (S)	840561	100 MM THERMOPLASTIC TRAFFIC STRIPE	M	14837		
233 (S)	840563	200 MM THERMOPLASTIC TRAFFIC STRIPE	M	1990		
234 (S)	840571	100 MM THERMOPLASTIC TRAFFIC STRIPE (BROKEN 5.18 M - 2.14 M)	M	91		
235 (S)	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	3300		
236 (S)	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	1901		
237 (S)	860201	SIGNAL AND LIGHTING	LS	LUMP SUM	LUMP SUM	
238 (S)	019469	LIGHTING STAGE CONSTRUCTION- LOCATION 1	LS	LUMP SUM	LUMP SUM	
239 (S)	019470	LIGHTING STAGE CONSTRUCTION- LOCATION 2	LS	LUMP SUM	LUMP SUM	
240 (S)	019471	LIGHTING AND SIGN ILLUMINATION AND TRAFFIC OPERATIONS SYSTEM STAGE CONSTRUCTION- LOCATION 3	LS	LUMP SUM	LUMP SUM	

ENGINEER'S ESTIMATE**04-013054**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
241 (S)	019472	SIGNAL AND LIGHTING STAGE CONSTRUCTION-LOCATION 4	LS	LUMP SUM	LUMP SUM	
242 (S)	860462	LIGHTING (LOCATION 2)	LS	LUMP SUM	LUMP SUM	
243 (S)	860551	LIGHTING AND SIGN ILLUMINATION (LOCATION 1)	LS	LUMP SUM	LUMP SUM	
244 (S)	019473	CAMERA UNIT	EA	1		
245 (S)	019474	PAN/TILT UNIT	EA	1		
246 (S)	019475	CAMERA CONTROL UNIT	EA	1		
247 (S)	019476	VIDEO ENCODER UNIT	EA	1		
248 (S)	019477	INTEGRATED SERVICE DIGITAL NETWORK TERMINAL ADAPTER	EA	1		
249 (S)	019478	CLUSTER CONTROLLER FOR MICROWAVE VEHICLE DETECTION SENSOR SYSTEM	EA	1		
250 (S)	019479	ANALOG DATA STATION TERMINATION	EA	1		
251 (S)	019480	TRAFFIC OPERATIONS SYSTEM (LOCATION-1)	LS	LUMP SUM	LUMP SUM	
252 (S)	019481	TRAFFIC OPERATIONS SYSTEM (LOCATION-2)	LS	LUMP SUM	LUMP SUM	
253 (S)	019482	TRAFFIC OPERATIONS SYSTEM (LOCATION-3)	LS	LUMP SUM	LUMP SUM	
254 (S)	019483	CALLBOX SYSTEM	LS	LUMP SUM	LUMP SUM	
255 (S)	869072	SEISMIC MONITORING SYSTEM	LS	LUMP SUM	LUMP SUM	
256 (S)	048355	INSTALL SEISMIC MONITORING CASING	M	184		
257	BLANK					
258	020059	50 MM PERFORATED PLASTIC PIPE	M	960		
259	020060	50 MM PLASTIC PIPE	M	160		
260	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____